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| 10/711,826 | 10/07/2004 | Frank Darl Bower | SVL920040022US1 | 5825 |
| 45727 | 7590 | 09/06/2006 | EXAMINER | |
| LACASSE & ASSOCIATES, LLC 1725 DUKE STREET, SUITE 650 ALEXANDRIA, VA 22314 | | | MORRISON, JAY A | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2168 | |

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/711,826

Applicant(s)

BOWER ET AL.

Examiner

Jay A. Morrison

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10/7/04 & 10/18/04. & 10/15/04.</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-22 are pending.

Claim Objections

2. Claims 3,4,16-17 and 22 are objected to because of the following informalities:
 - a. As per claim 3, line 2: "across networks" should be "across network elements".
 - b. As per claim 4, line 2: "across network elements: should be "across network elements".
 - c. As per claim 16, line 1: "has exceed" should be "has exceeded".
 - d. As per claim 17, lines 2: "control information" should be "wherein control information".
 - e. As per claim 22, line 2: "control information" should be "wherein control information".
- Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 13,17-18,22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 13 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: how the limitation "said writing based on recency information" particularly qualifies said writing; no specific method for determining recency information, or even exactly what it comprises, can be found in the instant Application.

Claim 17 recites the limitation "said change in page size" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 22 recites the limitation "said change in page size" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1,3,4,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subramaniam et al. ('Subramaniam' hereinafter) (Patent Number 6,965,899) in view of Teng et al. ('Teng' hereinafter) (Patent Number 6,460,048).

As per claim 1, Subramaniam teaches

A method for updating object page size during reorganization of a table space in a database comprising the steps of: (see abstract and background)

(a) allocating a shadow data set for at least one object belonging to a first data set from said table space; (revised table, column 3, lines 4-12)

(b) writing to a shadow control block corresponding to each of said allocated shadow data sets, a new page size value; said new page size value corresponding to said at least one object; (revised table created, column 2, line 59 through column 3, line 12)

(c) loading rows from said first data set of said table space into said allocated shadow data set; for each row loaded, reading each object corresponding to said

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loaded row from said table space and writing said read object to said allocated shadow data set; and (populating, column 3, lines 4-12)

Subramaniam does not explicitly indicate "(d) updating at least: said first data set of said table space with data from said shadow data set; a system catalog for said database with said new page size value; and at least one database control block with said new page size value; said at least one database control block corresponding to said first data set."

However, Teng discloses "(d) updating at least: said first data set of said table space with data from said shadow data set; a system catalog for said database with said new page size value; and at least one database control block with said new page size value; said at least one database control block corresponding to said first data set" (updates system tables, column 6, lines 55-65).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Subramaniam and Teng because using the steps of "(d) updating at least: said first data set of said table space with data from said shadow data set; a system catalog for said database with said new page size value; and at least one database control block with said new page size value; said at least one database control block corresponding to said first data set" would have given those skilled in the art the tools to improve the invention by allowing users to access databases during reorganization. This gives the user the advantage of not having to wait through long rebuilds before accessing data.

As per claim 3, Subramaniam teaches

said method is implemented across networks. (column 13, lines 4-16)

As per claim 4, Subramaniam teaches

said across network element is any of the following: local area network (LAN), wide area network (WAN), or the Internet. (column 13, lines 4-16)

As per claim 9,

This claim is rejected on grounds corresponding to the arguments given above for rejected claim 1 and is similarly rejected.

7. Claims 2,5-8,10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Subramaniam et al. ('Subramaniam' hereinafter) (Patent Number 6,965,899) in view of Teng et al. ('Teng' hereinafter) (Patent Number 6,460,048) and further in view of Huras et al. ('Huras' hereinafter) (Publication Number 2001/0047360).

As per claim 2,

Subramaniam does not explicitly indicate "prior to said shadow data set allocation, blocking write access to said first data set from said table space; and subsequent to said updating said table space, said database system catalog, and said at least one database control block, allowing write operations related to said first data set to proceed."

However, Huras discloses "prior to said shadow data set allocation, blocking write access to said first data set from said table space; and subsequent to said updating said table space, said database system catalog, and said at least one database control block, allowing write operations related to said first data set to proceed" (paragraph [0112]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Subramaniam, Teng, Huras and because using the steps of "prior to said shadow data set allocation, blocking write access to said first data set from said table space; and subsequent to said updating said table space, said database system catalog, and said at least one database control block, allowing write operations related to said first data set to proceed" would have given those skilled in the art the tools to improve the invention by allowing access to the data during the reorganization without observing significant reduction in performance. This gives the user the advantage of not having to experience long wait times for data during reorganization.

As per claim 5,

Subramaniam does not explicitly indicate "said loading is further comprised of: (a) concurrently loading rows corresponding to said at least one object from said table space into said shadow data set and extracting index keys for each loaded row; said shadow data set allocated for each of said at least one object and associated indices, and (i) for each of said loaded rows, identifying columns representing data

corresponding to said at least one object; and (ii) for each column representing data corresponding to said at least one object, reading data from said table space; said data read using row information from a currently loaded row; and writing said data corresponding to said at least one object to said shadow data set."

However, Huras discloses "said loading is further comprised of: (a) concurrently loading rows corresponding to said at least one object from said table space into said shadow data set and extracting index keys for each loaded row; said shadow data set allocated for each of said at least one object and associated indices, and (i) for each of said loaded rows, identifying columns representing data corresponding to said at least one object; and (ii) for each column representing data corresponding to said at least one object, reading data from said table space; said data read using row information from a currently loaded row; and writing said data corresponding to said at least one object to said shadow data set" (paragraph [0082]-[0084]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Subramaniam, Teng, Huras and because using the steps of "said loading is further comprised of: (a) concurrently loading rows corresponding to said at least one object from said table space into said shadow data set and extracting index keys for each loaded row; said shadow data set allocated for each of said at least one object and associated indices, and (i) for each of said loaded rows, identifying columns representing data corresponding to said at least one object; and (ii) for each column representing data corresponding to said at least one object, reading data from said table space; said data read using row information from a

currently loaded row; and writing said data corresponding to said at least one object to said shadow data set" would have given those skilled in the art the tools to improve the invention by allowing access to the data during the reorganization without observing significant reduction in performance. This gives the user the advantage of not having to experience long wait times for data during reorganization.

As per claim 6,

Subramaniam does not explicitly indicate "prior to said concurrent loading of rows and extracting of index keys, unloading rows from said table space; and sorting said unloaded rows; said sorted rows subsequently loaded into said shadow data set in said loading step."

However, Teng discloses "prior to said concurrent loading of rows and extracting of index keys, unloading rows from said table space; and sorting said unloaded rows; said sorted rows subsequently loaded into said shadow data set in said loading step" (column 2, lines 1-16).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Subramaniam, Teng, Huras because using the steps of "prior to said concurrent loading of rows and extracting of index keys, unloading rows from said table space; and sorting said unloaded rows; said sorted rows subsequently loaded into said shadow data set in said loading step" would have given those skilled in the art the tools to improve the invention by allowing users to access databases during

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reorganization. This gives the user the advantage of not having to wait through long rebuilds before accessing data.

As per claim 7, Subramaniam teaches

said method is implemented across networks. (column 13, lines 4-16)

As per claim 8, Subramaniam teaches

said across network element is any of the following: local area network (LAN), wide area network (WAN), or the Internet. (column 13, lines 4-16)

As per claim 10,

This claim is rejected on grounds corresponding to the arguments given above for rejected claim 2 and is similarly rejected.

As per claims 11-12,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 5-6 and are similarly rejected.

8. Claims 13-14,18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iyer et al. ('Iyer' hereinafter) (Publication Number 2002/0143743) in view of Socket et al. ('Socket' hereinafter) (Database Reorganization – Principles and Practice, Socket,

Gary H. and Goldberg, Robert P., Computing Surveys, Vol. 11, No. 4, December 1979, pages 371-395).

As per claim 13, Iyer teaches

Reorganizing a designated object of a database that has exceeded a current page size by: (see abstract and background)

a) writing ... rows added to said designated object; said writing based on recency information; (writing of rows, paragraph [0051])

b) permitting continual access to said designated object during said writing step; (online reorganization, paragraph [0047])

c) reading constituent rows from a plurality of existing pages corresponding to said designated object and subsequently copying said constituent rows; (move record, paragraph [0056])

and d) externalizing said designated object. (all locks being unlocked, paragraph [0330])

Iyer does not explicitly indicate "to a larger page...to said larger page"

However, Sockut discloses "to a larger page...to said larger page" (page 386, column 2, second paragraph).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Iyer and Sockut because using the steps of "to a larger page...to said larger page" would have given those skilled in the art the tools to improve

the invention by improving performance. This gives the user the advantage of not having to wait as long for a transaction.

As per claim 14, Iyer teaches
during said copying, constituent rows of said designated object are re-arranged in physical storage to eliminate fragmentation. (paragraph [0056])

As per claims 18-19,
These claims are rejected on grounds corresponding to the arguments given above for rejected claims 13-14 and are similarly rejected.

9. Claims 15-17,20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iyer et al. ('Iyer' hereinafter) (Publication Number 2002/0143743) in view of Socket et al. ('Socket' hereinafter) (Database Reorganization – Principles and Practice, Socket, Gary H. and Goldberg, Robert P., Computing Surveys, Vol. 11, No. 4, December 1979, pages 371-395) and further in view of Teng et al. ('Teng' hereinafter) (Patent Number 6,460,048).

As per claim 15,
Iyer does not explicitly indicate "said database is comprised of: a plurality of index values and a system catalog."

However, Teng discloses "said database is comprised of: a plurality of index values and a system catalog" (column 5, lines 35-40; column 6, lines 55-65)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Iyer, Socket and Teng because using the steps of "said database is comprised of: a plurality of index values and a system catalog" would have given those skilled in the art the tools to improve the invention by allowing users to access databases during reorganization. This gives the user the advantage of not having to wait through long rebuilds before accessing data.

As per claim 16, Iyer teaches
during said copying, data in said constituent rows is compacted and is stored on contiguous pages in physical storage in accordance with one of said plurality of index values (paragraph [0056])

As per claim 17,
Iyer does not explicitly indicate "control information associated with said system catalog is updated to reflect said change in page size corresponding to said externalized designated object."

However, Teng discloses "control information associated with said system catalog is updated to reflect said change in page size corresponding to said externalized designated object" (column 6, lines 55-65)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Iyer, Sockut and Teng because using the steps of "control information associated with said system catalog is updated to reflect said change in page size corresponding to said externalized designated object" would have given those skilled in the art the tools to improve the invention by allowing users to access databases during reorganization. This gives the user the advantage of not having to wait through long rebuilds before accessing data.

As per claims 20-22,

These claims are rejected on grounds corresponding to the arguments given above for rejected claims 15-17 and are similarly rejected.

Conclusion

The prior art made of record, listed on form PTO-892, and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jay A. Morrison whose telephone number is (571) 272-7112. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on (571) 272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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